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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/655,920

09/05/2003

Hassan Mostafavi

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55499 7590 01/30/2007  
VARIAN MEDICAL SYSTEMS TECHNOLOGIES, INC.  
c/o BINGHAM MCCUTCHEN LLP  
THREE EMBARCADERO CENTER  
SAN FRANCISCO, CA 94111-4067

EXAMINER

LAURITZEN, AMANDA L

ART UNIT

PAPER NUMBER

3737

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/30/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/655,920

Applicant(s)

MOSTAFAVI, HASSAN

Examiner

Amanda L. Lauritzen

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-63 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-63 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>See Continuation Sheet</u> .                                  | 6) <input type="checkbox"/> Other: _____                          |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :5/17/04; 6/16/05; 8/1/06; 3/22/05; 2/18/05.

**DETAILED ACTION*****Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. Claims 1, 2, 6, 7, 10-12, 15-18, 20-30, 32-36 and 38-63 are provisionally rejected on the ground of nonstatutory double patenting over claims 1-56 of copending Application No.

10/656,478. This is a provisional double patenting rejection as the conflicting claims have not yet been patented. The subject matter claimed in the instant application is fully disclosed in copending application 10/656,478 and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: acquiring a sequence of images, forming a composite image and gating a medical procedure while providing a template. The instant claims are broader in

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scope and therefore anticipated by the conflicting claims. The instant claims are broader in scope in that they do not claim using weighted averaging methods.

2. Claims 1, 2, 6, 7, 10-12, 15-18, 20-30, 32-36, and 38-63 are rejected on the ground of nonstatutory double patenting over claims 1-47 of 7,158,610. The instant claims are broader in scope in that they are not specific to x-ray images.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 6-16, 20-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Riazat et al. (US 6,690,965).

Riazat et al. disclose systems and methods for physiological gating of a medical procedure comprising acquiring a sequence of images of a target region; and gating a medical procedure based on a composite image (refer to the abstract in which image data is used in the gating of radiation therapy; see also col. 7, line 54 – col. 8, line 5, in which subtraction of image frames is used to obtain the difference over a portion of the image frames corresponding to a target region). The system of Riazat uses a first value corresponding to movement of the target area to determine a threshold boundary for deactivation of a radiation beam (col. 5, lines 38-47; see also lines 21-24 for “threshold points that correspond to treatment intervals”).

Regarding claim 8, included in the system of Riaziat is a fluoroscopic imager (col. 6, lines 55-56).

Regarding claim 15, the system of Riaziat includes computer-readable media with stored instructions to carry out the above-mentioned process(es).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 3-5 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riaziat et al (US 6,690,965) in view of Takeo (US 6,125,166).

Riaziat et al. disclose systems and methods for physiological gating of a medical procedure comprising acquiring a sequence of images of a target region and gating a medical procedure based on a threshold value of an image as described above, but does not specify the value to be a contrast value. However, Takeo discloses a method of forming energy subtraction images and discloses using contrast values to determine threshold values (col. 1, lines 50-64 for the subtraction process; also col. 19, lines 11-28 in which a contrast value is used). It would have been obvious to use a contrast value of the image for reference as taught by Takeo in the system of Riaziat for determining a threshold value in the gating of a procedure, as contrast image data allows for extraction of a specific image structure that would be receiving treatment (for motivation, see Takeo at col. 2, lines 23-24).

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4. Claims 24-27, 29-33, 34-39, 40-43, 45-48, 49-54, 55-57, 58, 59 and 61-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riazat '965 in view of Verard et al. (US 2004/0097805).

Riazat et al. disclose all features of the invention as substantially claimed, including enhancing a moving object (col. 3, lines 36-54) except for providing templates that include both image and treatment data. In the same field of endeavor, Verard et al. disclose registration images with templates (para. 112 and para. 132 in which templates provide treatment data that includes lead placement and para. 146 for templates that provide therapy effective zones). It would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated template registration as taught by Verard et al. with the system of Riazat et al. in order to optimize the procedure (for motivation, see Verard para. 146).

5. Claims 28, 44, 51 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riazat and Verard further in view of Takeo '166.

The system of Riazat as modified by Verard to include template image and treatment registration includes all features of the invention as substantially claimed except providing image averaging. However, Takeo discloses image averaging for the purpose of smoothing an image (col. 13, lines 36-46). It would have been obvious to incorporate image averaging as taught by Takeo with the modified system of Riazat in order to smooth images in the sequence.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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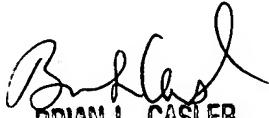
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amanda L. Lauritzen whose telephone number is (571) 272-4303. The examiner can normally be reached on Monday - Friday, 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



A.L.L.  
1/22/2007



BRIAN L. CASLER  
SUPERVISORY PATENT EXAMINER  
ELECTRONIC BUSINESS CENTER 3737